The intervertebral spaces were normal and the alignment perfect. The bone grafts showed evidence of partial fusion with the lumbar vertebrae and there was no evidence of rarefaction about them.

The patient's physical condition gradually improved so that by August 1929 he was able to resume his occupation as electrician. Physical examination in December showed almost complete return of function of the back. There was no tenderness along the lumbar spine and there was little limitation of motion. On bending forward, the finger tips came within eighteen inches of the floor. Final check-up x-ray pictures taken in April 1930 showed a recalcification of the body of the fifth lumbar vertebra. The fixation was fairly complete as a result of the bone grafts. The anatomical position was good and complete recovery had resulted.

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REFERENCES

1. Osgood, R. B. Compression Fractures of the Spine. J. A. M. A., 89, 1563-1568, November 1927.
2. Wallace, J. O. Crush Fractures of the Spine. J. Bone and Joint Surg., 5, 28-58, 1923.
3. Hoy, C. DaC. Fractures of Lumbar Spine. Internat. Clin. 4, 245-280, December 1924.

DIVERTICULA OF THE STOMACH*

REPORT OF CASES

By MILTON J. GEYMAN, M. D.
Santa Barbara

EVEN since the advent of the roentgen ray, comparatively few cases of gastric diverticula have been reported in the literature. This is partially due to their rarity as true diverticula occur much less frequently in the stomach than in other portions of the gastro-intestinal tract.

Diverticulous pouches in the stomach are of two types—congenital and acquired. The congenital type has two favorite sites of occurrence, in the posterior wall of the cardia and in the pyloric end. The cardiac type is much more commonly seen and most cases reported are of this type. Their appearance is strikingly similar as to site, and the size varies from that of a pea to that of an egg. Pathological examination of these diverticula which have been removed at operation or postmortem examination show, as a rule, no evidence of inflammatory change. All normal layers of the stomach are found present but the muscular layers may be extremely thin. In fact the reason that the cardiac end type is most common is that the inherent weakness of the stomach is at this site. This is explained by two anatomical observations: the entrance of larger blood vessels, and the thinness of the oblique and circular fibers at this point. Kalbfleisch, in an excellent recent article on this subject, compares this site to the similarly weak point in the lower pharynx where the so-called Zenker's diverticulum is seen.

The other congenital diverticula occur in the pyloric end of the stomach. In the bottom of these pouches pancreatic tissue is commonly found and this is the explanation given for their occurrence.

The acquired type of diverticulum often consists of only one or two layers of stomach wall. In general, this type has two etiologies: (1) trauma; (2) the result of inflammatory changes in the stomach or adjoining structures. Traumatic diverticula are usually of the pulsion type and may be caused by hair balls, foreign bodies and pyloric obstruction, with resultant formation at a weak site.

The traction type is caused by adhesions which develop after long-standing inflammation in the gall bladder, pancreas, colon, or lymph glands.

As to the clinical significance of diverticula of the stomach, it is doubtful if they are of much import. Symptoms are as a rule vague and of mild character. Vague discomfort in the epigastrium, substernal fullness, stinging sensations after eating certain foods, and sour eructations comprise the most commonly mentioned complaints. Complications of clinical significance are rare. Mayo reports the presence of carcinoma at the bottom of a diverticulum. Bell and Golden, in a recent report of four cases, refer to cases re-

*Read before the Radiology Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.

Fig. 1.—Shows the diverticulum as seen immediately after a barium meal.

Fig. 2.—Shows the diverticulum as visualized immediately after the barium meal in the right oblique position.

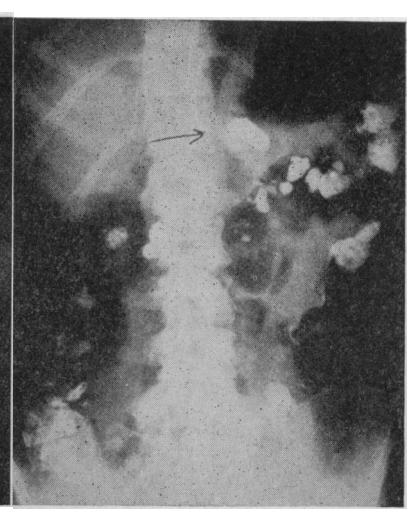

Fig. 3.—Shows the barium-filled pouch at forty-eight hours after the meal.

ported by European writers in which myomata were found in the walls of the diverticula. These patients suffered from severe hemorrhages as the tumor progressed. Bell and Golden quite reasonably believe that these should not be described as diverticula, because the apparent pouching in the gastric contour was caused by central degeneration in the individual tumor with invagination of mucosa into the hollowed sphere. The roentgen appearance of gastric diverticula is, of course, unmistakable.

REPORT OF CASES

The following two cases are reported as typical examples of cardiac end diverticula:

CASE 1.—Male patient of sixty-six years of age. For the past twenty years he has had a vague, dull ache in the upper abdomen. With the onset of this complaint he noted a burning in the epigastrium which was relieved by food. He complained of an almost constant sour stomach, and for years was on a serial small meal regimen. In recent years the distress has been more constant.

* * *

CASE 2.—Female patient, thirty-four years of age. Her chief complaint was a stinging sensation in the left side of the epigastrium at the costal border. This always occurred immediately after eating sugar, condiments, sticky, dry or rough foods. No relief was obtained with soda. Drinking water relieved the sting promptly.

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DYSTOCIA DUE TO FETAL ASCITES

REPORT OF CASE

By JOHN N. EWER, M. D.
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RARE among complications of labor are dystocias caused by fluid accumulations enlarging the fetal abdomen. According to Dorland [1] such accumulations fall into six classes, namely: (1) serum in the fetal peritoneal cavity ("true fetal ascites"); (2) fluid distention of the fetal urinary tract ("retention of fetal urine"); (3) fluid in the tissues of the fetal body ("general anasarca of the fetus," "general edema of the fetus," "fetal dropsy"); (4) congenital polycystic kidneys; (5) cystic degeneration of the fetal liver; (6) fluid distention of the fetal genital tract (vagina, uterus, and tubes).

In his article Dorland listed all such cases in the world literature up to 1919. Of the first class he was able to find only eighty cases, including his own. A search of the literature as listed in the Catalogue of the Surgeon-General's Library and The Quarterly Cumulative Index Medicus since that time reveals apparently only four additional cases of fetal ascites, those of Alam,[2] Rizzuto,[3] and Palieri [4] (two cases). The case reported below makes a total of eighty-five cases in all.

REPORT OF CASE

V. N., white, age twenty-eight, gravida V, entered Highland Hospital June 27, 1929, at term. Her previous pregnancies and labors were normal. The patient was not in labor, but was admitted because of edema of the legs and feet, overdistention of the abdomen, and because no fetal movements had been felt for two weeks. At physical examination no general abnormalities were found. The abdomen was very large and hard, the fundus extended 43 centimeters above the symphysis, fetal parts were not felt, and fetal heart tones were not heard. There was no dilatation of the cervix. The Wassermann reaction and urinalysis were negative. The pelvic measurements were: I. S., 25 centimeters; I. C., 28 centimeters; Tr., 32 centimeters; E. C., 22 centimeters. The patient had a large rectocele and a small cystocele.

The membranes were artificially ruptured at 7:30 p. m. with the purpose of inducing labor. About four to five liters of straw-colored amniotic fluid escaped. Labor pains began at 11 p. m. The position of the fetus, as determined by rectal examination, was L. O. A. Labor progressed normally, and the head was delivered spontaneously by L. O. A. mechanism at 1:30 p. m. June 28, 1929. All efforts of the intern to extract the body failed, and the writer was called. The shoulders, as determined by vaginal examination, were free in the pelvis, but the fetal abdomen was found greatly distended above the brim, and tense as though full of fluid. With great difficulty the fetal abdomen of the dead fetus was punctured twice with a long pair of dressing forceps, allowing considerable fluid to escape, but not enough could be evacuated to collapse the abdomen sufficiently to allow it to pass the inlet. In order to better reach and perforate the abdomen, the fetus was decapitated and podalic version done under ether anesthesia. Enough small perforations were then made to drain sufficient fluid to allow the child to be delivered by breech extraction. There was no perineal tear. The placenta and membranes were delivered intact. The puerperium was normal, with a maximum temperature of 99 degrees on the sixth day postpartum, and the patient was discharged July 7, 1929.

Autopsy.—Anatomical diagnosis: "Hydroperitoneum, hydropleura, hydropericardium." The fetus was well developed and formed, and was not edematous; it showed slight maceration. Gross and microscopic examination of the various organs showed no abnormalities. Unfortunately the placenta and cord were not dissected and thoroughly examined, but they appeared normal to the usual inspection at the time of delivery.

Dorland found in his review of the literature that in about one-half of the cases fetal peritonitis was the cause of the ascites. Other causes were absence of the ductus venosus, abdominal tumors or distended bladder exerting pressure on large vessels or upon the portal vein, fetal cardiac failure, and lesions of the liver and spleen. Syphilis was mentioned as a rare cause. None of these conditions were present in the case here reported, and the cause of the ascites remains unknown.

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REFERENCES

1. Dorland. Am. J. Obst., 79, 474, April 1919.
2. Alam. Indian M. Gaz., 57, 260, July 1922.
3. Rizzuto. Riv. d'Ostet. e Ginec. Prat., 4, 23, 1922.
4. Palieri. Rassegna d'Ostet. e Ginec., 34, 321, 1925.

UNIVERSITY OF CALIFORNIA HOSPITAL—MEDICAL DIVISION*

REPORTS AND DISCUSSIONS ON PATIENTS HAVING TUBERCULOSIS INVOLVING THE EYES

CASE I.—T. B. Admission No. 76359; married; male; half American-Indian; age twenty-seven; entered University of California Hospital medical teaching service on August 1, 1930. Referred by Dr. J. W. Carlson of Oakland.

Chief Complaints.—Photophobia, inability to read, and aching pains in eyes of fifteen months' duration; residual paralysis of left face since four years ago;

* Cases presented at the Wednesday morning staff conferences.